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West Virginia Timber Products Output--1987

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Abstract

The total industrial harvest in West Virginia was over 110 million cubic feet in 1987. This was a 24 percent increase since 1979. Sawlogs accounted for 70 percent of the total and pulpwood accounted for 21 percent. During this 8-year period, sawlog production was up by 35 percent to 563 million board feet. Pulpwood production reached 272,000 cords of roundwood and 286,000 cord equivalents of residue chips. The use of manufacturing residues produced at West Virginia mills increased from 75 percent to 90 percent. The largest use of residues was for fiber.

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Cover Photo: New equipment designed to work on steep slopes is beginning to be used in West Virginia.

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Study Method

The Forest Service of the U. S. Department of Agriculture periodically surveys the primary wood products industries to provide up-to-date information on the Nation's timber supply. This study was conducted jointly with the West Virginia Division of Forestry. Information in this report updates similar studies conducted by the Northeastern Forest Experiment Station and the West Virginia Division of Forestry in 1965, 1974, and 1979 (Bones and Glover 1977, Nevel and Murriner 1979[1]). The information in this report was obtained by canvassing all primary wood-product manufacturers that were operating in West Virginia in 1987. The list of firms operating during 1987 was assembled by the West Virginia Division of Forestry (W.V. Dept. of Agric. For. Div. 1988). The primary manufacturers were initially contacted by a mailed questionnaire. Probable out-of-state consumers of West Virginia roundwood also received questionnaires. Those mill owners in West Virginia who did not respond were contacted in person by West Virginia Division of Forestry personnel. Nonresponding out-of-state mills were contacted by telephone. A response was received from every mill that was known to be operating in the state with the exception of a few small custom mills for which receipts were estimated.

In compiling the tables in this report, quantities of sawlogs reported by mills using other than the International 1/4-inch Log Rule were converted to the International 1/4-inch Log Rule. In this report, an improved method of calculating conversion factors was used. Based on the average log diameter and length reported by the mills, a conversion factor was calculated for each individual mill. In previous reports, a general conversion factor was used based on the average log diameter and length for the entire state.

[1]Nevel, Robert L., Jr.; Murriner, Edward C. 1979. West Virginia timber industries - periodic assessment of timber output. Unpublished office report. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 70 p.

The Forest Resource

The forests of West Virginia are an important part of the maturing hardwood resource in the Northeastern United States. Timberland covers 77 percent of the State or 11.9 million acres (DiGiovanni and Frieswyk 1990). In recent years, the role of the timber industry in the state economy has increased as the value of the forest resource is recognized.

Nearly two-thirds of the timberland acreage in the state is in valuable sawtimber stands; the predominant forest type is oak/hickory. In 1989, the USDA Forest Service estimated that 57.8 billion board-feet of timber were growing in West Virginia with 26 percent of the hardwood board-foot volume in the more valuable log grades 1 and 2. Estimates also show that the net annual growth was nearly 4 times annual removals. Between 1975 and 1989, the average board-foot volume per acre of timberland increased from 3,150 board feet to 4,850 board feet (DiGiovanni and Frieswyk 1990).

This forest resource supplies raw materials to a strong forest products industry. This study canvassed 111 sawmills (each with annual receipts over 1 million board feet); 1 veneer mill; and many smaller sawmills, rustic fence manufacturers, log cabin home manufacturers, and other specialty mills operating in West Virginia (Table 4). Also, considerable volumes of pulpwood sawlogs and veneer logs were shipped to mills in other states.

Historical Trends in Lumber Production

The timber industry flourished in West Virginia from 1879 to 1920. During this boom period, an estimated 29 billion board feet of lumber were produced from West Virginia's forests (Clarkson 1964). The peak year of production was 1909 when 1,524 sawmills operated in the state producing 1.5 billion board feet of lumber (Steer 1948). About 60 percent of this was from hardwood species.

The vast amounts of quality timber in the original forest made this boom possible. But by 1920, the original forest was completely depleted except

for a few isolated areas of small acreage (Clarkson 1964). The timber industry collapsed quickly as virgin stands became scarce, reaching a low point in 1933 when 185 million board feet were produced. Production picked up again during World War II then leveled off, averaging about 425 million board feet a year through 1978 when 406 million board feet were produced (Nevel and Murriner 1979).

Total Harvest

The industrial roundwood harvest includes sawlogs, veneer logs, pulpwood, and other wood used by primary wood processors. Over 110 million cubic feet of wood were harvested from West Virginia forests in 1987. This includes 563 million board feet of sawlogs, 272,000 cords of pulpwood roundwood, 7.6 million board feet of veneer logs, and 9.1 million cubic feet of wood for all other products such as cooperage, mine timbers, and fencing (Table 1). Hardwoods were the major species group harvested making up over 91 percent of the harvest.

Data from previous surveys reveal that the harvest declined from 1965 through 1979 (Fig. 1). Since 1979, total production has increased by 24 percent and has now returned to a level slightly above that of 1974 (Table 2). Plans by some companies to increase capacity and to build new mills in the state suggest that these increases are likely to continue.

The majority of the wood harvested in the state is delivered to sawmills. In 1987, 70 percent of the harvest was sawlogs, 21 percent pulpwood, 1 percent veneer and about 8 percent other products (Fig. 2).

In 1987, more of the industrial roundwood harvest came from West Virginia's Northeastern Region than from either of the other two regions (Fig. 3, Table 3). The 47 million cubic feet harvested here, represents 43 percent of the state total. The Southern Region was second with 37 percent of the harvest or 41 million cubic feet. The Northwestern Region ranked third with 22 million cubic feet or less than half of the Northeastern Unit's production. This ranking has not changed over the last three studies. On a per acre of timberland basis, these harvests averaged 11 cubic feet per acre in the Northeastern Region, 10 cubic feet per acre in the Southern Region, and 7 cubic feet per acre in the Northwestern Region.

The benefits of the wood industry are spread across the entire state with nearly every county in the state having at least one sawmill. In some rural communities, the forest products industry is the principal employer.

Sawlog Production

Sawlog production in 1987 was 562.8 million board feet, representing approximately 4.5 percent of the total hardwood sawlog harvest for the entire country. This was a 35 percent (145.5 million board feet) increase over 1979 production and was the highest level of production observed in the last 22 years (Fig. 1). Increased demands for quality hardwood lumber, and mills expanding to meet this demand, have made this increase in utilization possible. With recent announcements of plans to build new mills and expand existing mills, increases in production are likely to continue.

A wide variety of species makes up the sawlog harvest, however the oaks are the predominant species group (Fig. 4). Oaks comprise 49 percent of the sawlog harvest. Northern red oak leads all other species with 129.1 million board feet cut, followed by yellow-poplar with 112.9 million board feet. Other major species and their production are: white oak with 56.7 million board feet, chestnut oak with 38.9 million board feet, sugar maple with 30.3 million board feet, and red maple with 24.1 million board feet. The other red oaks group (all red oaks except northern red oak) totaled 52.8 million board feet (Table 5).

The Northeastern Unit had the highest sawlog production with 239 million board feet harvested, and was closely followed by the Southern Unit, which had 229 million board feet harvested (Table 8). The Northwestern Unit trailed these two units with 95 million board feet. Although the Northwestern Unit ranks below the other two units in production, it registered the largest percentage increase since the last study. Sawlog harvest per acre of timberland averaged 54

Table 9.--Production of pulpwood, roundwood, and manufacturing residues, West Virginia, 1968-87

(In thousands of rough cords)

Year	From roundwood	From manufacturing resudues	Total
1968	288.1	119.4	407.5
1969	279.7	149.4	429.1
1970	225.8	129.3	355.1
1971	228.2	112.2	340.4
1972	190.3	145.0	335.3
5-year total	1,212.1	655.3	1,867.4
1973	258.2	158.9	417.1
1974	213.6	198.5	412.1
1975	272.0	135.7	407.7
1976	213.2	149.1	362.3
1977	185.9	158.1	344.0
5-year total	1,142.9	800.3	1,943.2
1978	158.5	119.3	277.8
1979	126.2	164.3	290.5
1980	261.0	186.3	447.3
1981	235.2	156.3	391.5
1982	271.5	186.1	457.6
5-year total	1,052.4	812.3	1,864.7
1983	246.6	142.8	389.4
1984	244.5	189.7	434.2
1985	218.1	174.5	392.6
1986	231.0	216.4	447.4
1987	272.0	286.4	558.4
5-year total	1,212.2	1,009.8	2,222.0

Table 8.--Sawlog production and receipts by geographic unit, West Virginia, 1965-1987

(Million board feet)[a]

Geographic unit	Production					Receipts				
	1965	1974	1979	1987	Change 1979-87 (percent)	1965	1974	1979	1987	Change 1979-87 (percent)
Northeastern	201.3	186.1	187.6	239.2	+28	203.0	194.8	172.4	236.3	+37
Southern	227.4	199.4	168.7	228.9	+36	227.4	187.9	154.7	210.0	+36
Northwestern	62.0	78.2	61.0	94.7	+55	55.0	64.6	41.9	88.7	+112
All units	490.7	463.7	417.3	562.8	+35	485.4	447.3	369.0	535.0	+45

[a]International 1/4-inch log rule.

board feet per acre in the Northeastern Unit, 55 board feet per acre in the Southern Unit, and 28 board feet per acre in the Northwestern Unit. Counties with the greatest sawlog log harvests were Pocahontas, Randolph, and Webster in the Northeastern Region; and Greenbrier and Nicholas in the Southern Region. Each of these counties produced over 32 million board feet of sawlogs.

Statewide, West Virginia is a net exporter of sawlogs. In 1987, 54.4 million board feet of sawlogs were shipped to neighboring states (Table 5). The majority of these exports went to Virginia and Ohio, 28.6 million and 25.1 million board feet, respectively. Mills in West Virginia received 26.5 million board feet of logs from other states, mostly from Maryland, Kentucky, and Pennsylvania (Table 6).

Pulpwood

The production of pulpwood is an integral part of the roundwood harvest in West Virginia. At harvesting operations with access to pulpwood markets, wood that does not meet sawlog requirements is sold as pulpwood. This lower quality wood comes from the upper stem portion of sawlog-size trees, trees that are too small in diameter for sawlogs, and trees that have too many defects.

During 1987, 272,000 cords of pulpwood roundwood were harvested in the state (Table 9) (Widmann 1989). This is a 27 percent increase over the 1974 production. Softwood species, predominantly pine, comprise 26 percent and hardwood species the remaining 74 percent (Fig. 5). The hardwoods are a mixture of the many different species growing in the State and are harvested in approximately the same proportions in which they grow.

Over the last 20 years, pulpwood roundwood has averaged 231,000 cords. The highest production was in 1968 when 288,100 cords were produced, and the lowest was in 1979 when production dipped to 126,200 cords. Increases since 1979 have brought production in 1987 up to a level approaching that of 1968.

Residues produced from milling logs into lumber are also a source of pulpwood. Sawmills produce pulpwood chips from their slabs and edgings. In 1987, the equivalent of 286,400 cords of manufacturing residues was used for pulpwood. This was a 44 percent increase over 1974 production, and an all-time high. Recent increases in the production of pulpwood from manufacturing residues can be attributed to the increased volume of logs being sawn at sawmills in the state. Pulpmills provide a strong market for these otherwise underutilized materials.

The harvest of pulpwood in West Virginia has been irregular over the years (Fig. 6) because West Virginia is on the edge of the procurement area for several pulp mills. Small changes in demand by these mills are magnified in West Virginia. During slow economic times when mills reduce their procurement areas, pulpwood harvesters in West Virginia are often the first to have production cutbacks. There are now plans to build a new pulpmill in the state. If the mill is built, it could increase demand and provide a more localized market in many areas of the state.

Veneer Log Production

Veneer log production in 1987 was 7.6 million board feet (Table 10), representing 1 percent of the total harvest. This was down 900,000 board feet (11 percent) since 1979. Production was adversely affected by the closing of two veneer mills in the state, leaving just one in-state mill operating. Even though production declined, it is still at a historically high level for the state (Table 11). In 1987, 90 percent of the veneer logs produced were shipped out-of-state. The majority of these went to North Carolina which received 3.9 million board feet, mostly yellow-poplar. Other states receiving large amounts of veneer logs from West Virginia were Virginia (1.1 million board feet) and Ohio (800,000 board feet). Also reported was 700,000 board feet of predominantly oak species shipped overseas.

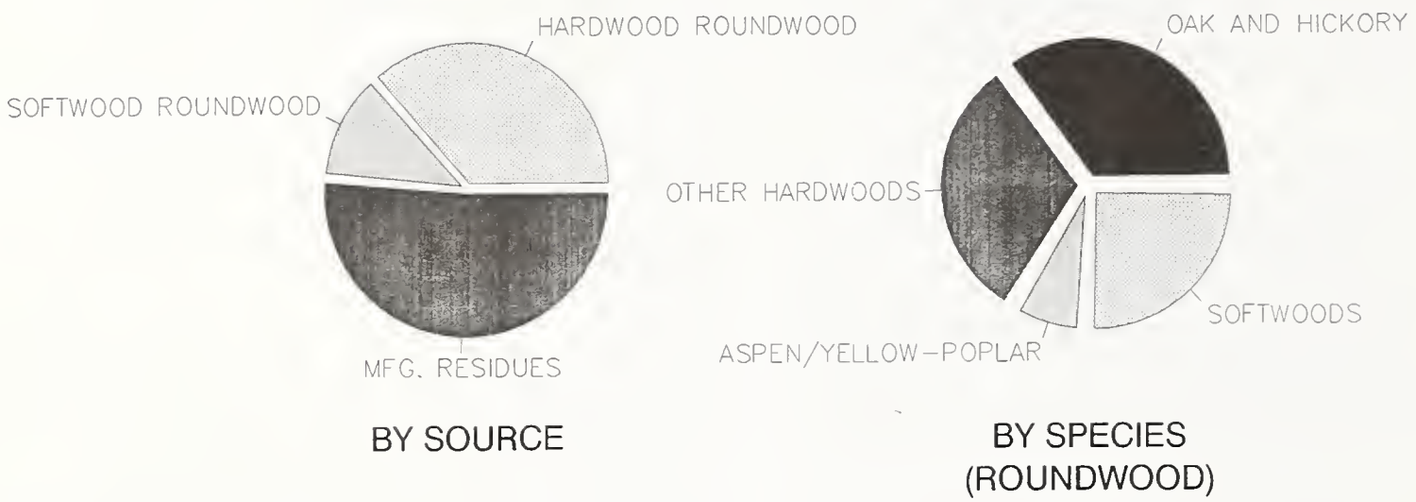

Figure 5.--West Virginia pulpwood production in 1987.

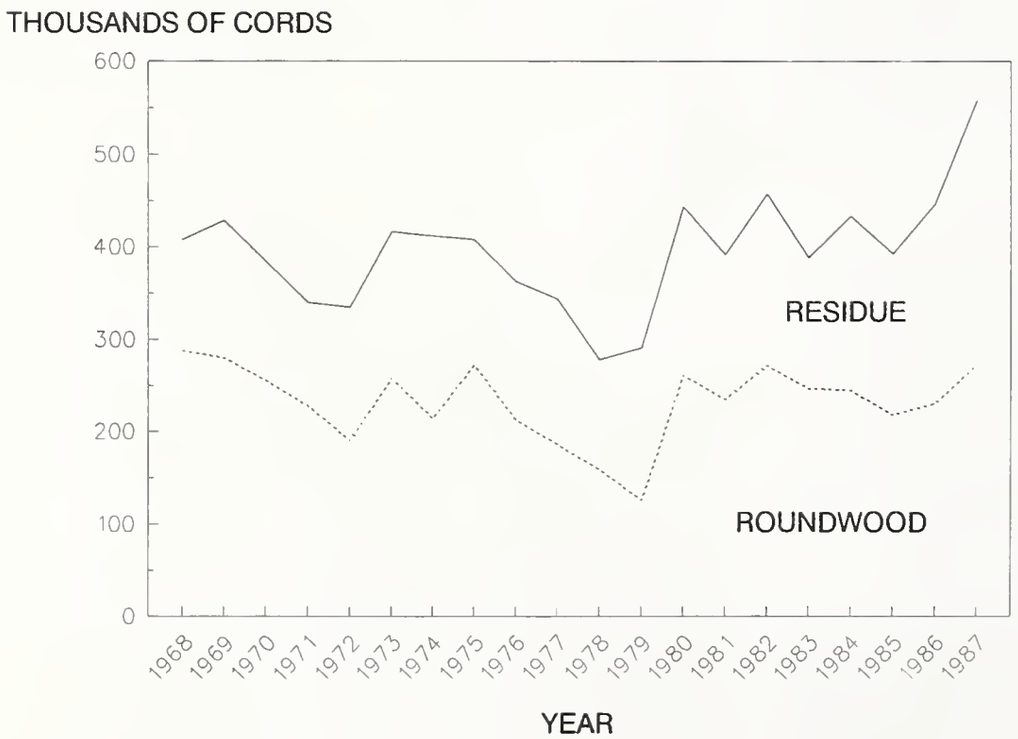

Figure 6.--Total production of pulpwood production in West Virginia, roundwood and manufacturing residues, 1968-87.

Yellow-poplar was the prominent species utilized for veneer, totaling 3.3 million board feet or 43 percent of all veneer logs. Other important species used were white oak with 1.8 million board feet, and red oak with 2.0 million board feet.

Veneer log production is difficult to track in West Virginia. These logs are bought and sold through a network of buyers and sellers and are shipped to many different mills. The data for logs shipped overseas should be considered as a minimum amount. In only a few instances could sawmills be sure that the veneer logs they resold were shipped overseas. Also, logs sold directly to foreign buyers or brokers by loggers were missed in this survey.

Rustic Fencing

Twenty rustic fence manufacturers operated in the state in 1987 (Murriner 1988). These mills produced 6.5 million pieces of rustic fencing using over 7.5 million cubic feet. About three-fifths of this volume was from hardwood species. Black locust was the predominant hardwood species with some yellow-poplar, red oak, red maple, and sassafras also used. The softwoods used were divided between red spruce and Virginia pine. Traditionally, decay resistant woods such as black locust have been used for fencing, but in recent years producers have been switching to other species and pressure treating them to extend the life expectancy.

Mill Residues

Primary wood manufacturers produced over 55 million cubic feet of residues in the process of converting roundwood into lumber and other wood products. Only 10 percent of this was unused (Fig. 7).

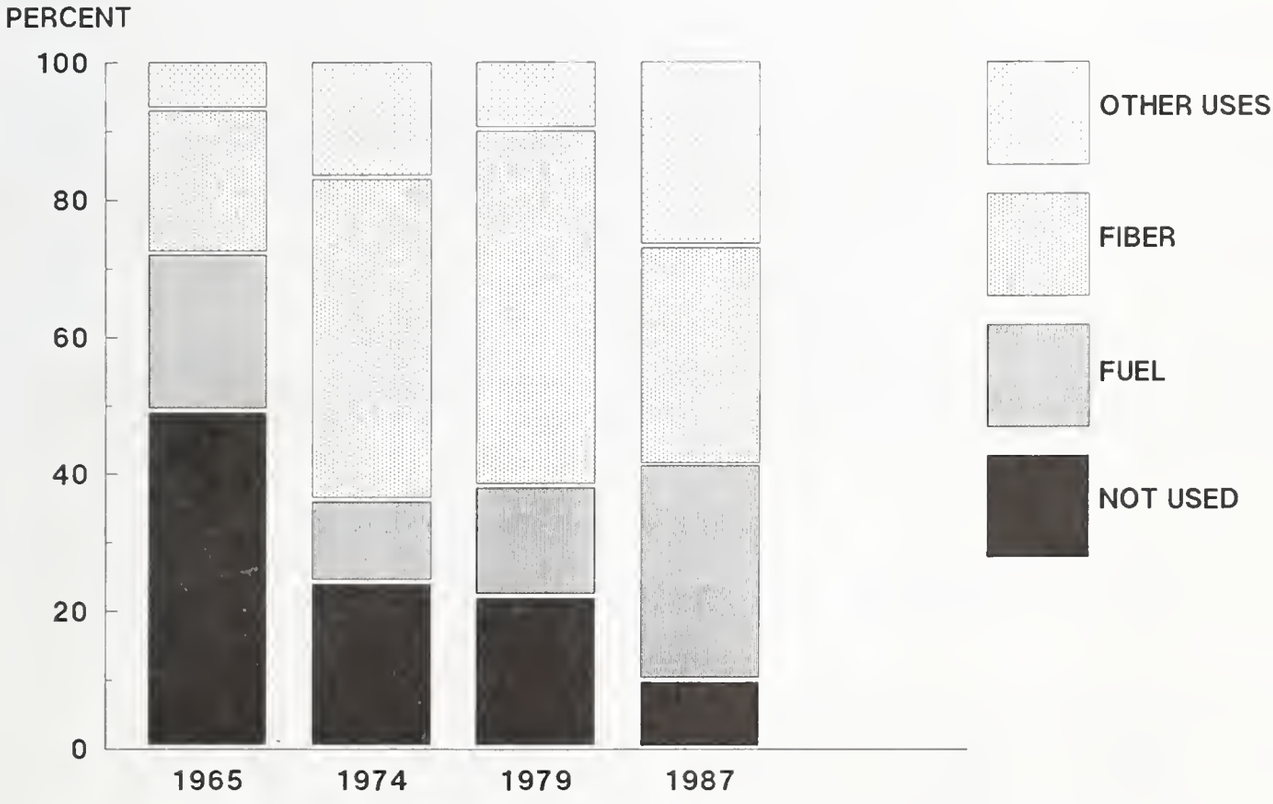

Figure 7.--Trends in manufacturing residue use in West Virginia, 1965, 1974, 1979, and 1987.

Three types of residues are produced: bark, coarse residues (mostly slabs and edgings), and fine residues (sawdust). The major use for bark is agricultural for livestock bedding and mulch. Other uses for bark include industrial fuel and charcoal. Three-fourths of the coarse residues were chipped and sold to out-of-state pulpmills. Slabs and edgings are also sold or given away by sawmills to people in the local communities for domestic fuel. The largest use of the fine residues was for industrial fuel. Pulpmills and many of the large sawmills burn sawdust to fuel their boilers and dry kilns. Sawdust is also used by the charcoal industry.

The 10 percent of the residues that are unused offer some opportunities for increased use, but most of this is bark and sawdust produced at smaller mills spread across the state. Residue use will probably shift to higher value uses. Such an example would be residues used as livestock bedding shifting to use for industrial fuel or partial board.

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Appendix

Definition of Terms

Course residues. Manufacturing residues, suitable for chipping, such as slabs, edgings, and veneer cores.

Fine residues. Manufacturing residues not suitable for chipping, such as sawdust and shavings.

Harvest. The aggregate volume of timber produced for industrial or consumer uses.

Industrial timber harvest. Total production of round timber for conversion into wood products, except fuelwood.

Manufacturing residues. Wood materials, such as sawmill slabs and edgings, sawdust, veneer clippings and cores, post and pole trimming, and pulp screening generated from the manufacture of roundwood products.

Net growth. The change, resulting from natural causes, in growing-stock volume over a period of time. Components of net growth are ingrowth plus accretion minus mortality and cull increment.

Northeastern Region. This geographic area includes the following counties; Barbour, Berkeley, Braxton, Grant, Hampshire, Hardy, Harrison, Jefferson, Lewis, Mineral, Morgan, Pendleton, Pocahontas, Preston, Randolph, Taylor, Tucker, Upshur, and Webster.

Northwestern Region. This geographic area includes the following counties; Brooke, Cabell, Calhoun, Doddridge, Gilmer, Hancock, Jackson, Lincoln, Marion, Marshall, Mason, Monongalia, Ohio, Pleasants, Putnam, Ritchie, Roane, Tyler, Wayne, Wetzel, Wirt, and Wood.

Pulpwood. Roundwood, whole-tree chips, or manufacturing residues that are used for the production of woodpulp.

Roundwood products. Logs, bolts, total-tree chips, mine timbers, fenceposts, poles, and similar timber products generated by harvesting trees for industrial or consumer use.

Primary wood-manufacturing plant. A plant that converts roundwood to wood products such as woodpulp, lumber, veneer, cooperage, and dimension stock.

Roundwood receipts. The roundwood products, such as logs and bolts, received by primary wood-manufacturing plants for conversion into wood products.

Sawlog. A roundwood product, from which products such as lumber are sawn, and which meets certain minimum standards of diameter, length, and defect, including a minimum 8-foot length and combination of size and defect specified in regional standards.

Southern Region. This geographic area includes the following counties: Boone, Clay, Fayette, Greenbrier, Kanawha, Logan, McDowell, Mercer, Mingo, Monroe, Nicholas, Raleigh, Summers, and Wyoming.

Standard cord. A unit of measure for stacked bolts of wood, encompassing 128 cubic feet of wood, bark, and air space. In the Northeast, the measure refers to a stack of wood containing 85 cubic feet, or 2.41 cubic meters, of solid wood. A standard cord commonly is referred to as a cord, as in this report. This is not the same as a face cord, commonly used in firewood marketing.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization. Formerly known as commercial forest land.

Timber products output. Includes roundwood (round timber) products harvested from growing stock on commercial forest land; from other sources, such as cull trees, limbs and tops, and saplings; from trees on noncommercial and nonforest lands; and from manufacturing plant byproducts.

Unused manufacturing residues. Plant residues that are dumped or destroyed and not recovered for use.

Veneer log or bolt. A roundwood product from which veneer is sliced or sawn that usually meets certain minimum stands of diameter, length, and defect.

Conversion Factors

Softwood logs: M bf (inernational 1/4-inch rule) = 149.1 ft^3

Hardwood logs: M bf (international 1/4-inch rule) = 136.6 ft^3

On average, 1 board foot Doyle Rule = 1.388 board foot International 1/4 rule.

Pulpwood: 1 standard cord = 85 ft^3 = 2.41 m^3

1 green ton aspen--yellow-poplar = 0.5263 cords

1 green ton oak-hickory = 0.3571 cords

1 green ton other hardwoods = 0.3846 cords

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11. Veneer log production and receipts, West Virginia, for selected years: 1963-87.

12. Production and distribution of hardwood manufacturing residues, by type of residue, source and use, West Virginia, 1987.

Table 1.--Volume of industrial roundwood by product harvested, West Virginia, 1987

Product	Standard unit	Softwood	Hardwood	All Species
		Volume in standard units		
Sawlogs	M Board feet[a]	6,786	556,092	562,878
Pulpwood	Standard cords[b]	69,400	202,600	272,000
Veneer logs	M board feet[a]	-	7,604	7,604
Fencing	M cubic feet	2,965	4,696	7,661
Miscellaneous products[c]	M cubic feet	5	1,483	1,488
		Volume in cubic feet (thousands)		
Sawlogs		999	76,078	77,077
Pulpwood		5,899	17,221	23,120
Veneer logs		-	1,030	1,030
Fencing		2,965	4,696	7,661
Miscellaneous products		5	1,483	1,488
Total		9,868	100,508	110,376
		Volume in cubic meters (thousands)		
Sawlogs		28.3	2,154.3	2,182.6
Pulpwood		167.0	487.7	654.7
Veneer logs		-	29.2	29.2
Fencing		84.0	133.0	217.0
Miscellaneous products		.2	42.0	42.2
Total		279.5	2,846.2	3,125.7

[a] International 1/4-inch rule, M-indicates thousand.
[b] Rough-wood basis equivalent to 85 cubic feet of solid wood.
[c] Includes cooperage, mine timbers, and other miscellaneous products.

Table 2.--Change in timber products output, West Virginia, 1965-87

(Million cubic feet)

	All species				Softwoods				Hardwoods			
	1965	1974	1979	1987	1965	1974	1979	1987	1965	1974	1979	1987
Sawlogs	84.5	72.2	65.1	77.1	3.6	2.9	3.0	1.0	80.9	69.3	62.1	76.1
Pulpwood	27.1	18.2	10.7	23.1	8.7	4.3	2.5	5.9	18.4	13.9	8.2	17.2
Veneer logs	.8	.5	1.3	1.0	-	-	-	-	.8	.5	1.3	1.0
Cooperage	.8	.5	.1	*	-	-	-	-	.8	.5	.1	*
Miscellaneous	18.8	15.2	12.0	9.2	.9	4.4	1.9	3.0	17.9	10.8	10.1	6.2
Total	132.0	106.6	89.2	110.4	13.2	11.6	7.4	9.9	118.8	95.0	81.8	100.5

*Less than 50,000 cubic feet.

Table 3.--Industrial timber harvest,[a] by geographic unit, softwoods and hardwoods, and products, West Virginia, 1987

(Thousands of cubic feet)

Geographic unit and species group	Sawlogs and veneer logs	Pulpwood	Other products	All products
Northeastern				
Softwood	529	3,323	1,083	4,935
Hardwood	32,572	7,191	2,772	42,535
Total	33,101	10,514	3,855	47,470
Southern				
Softwood	354	442	87	883
Hardwood	31,406	7,183	1,573	40,162
Total	31,760	7,625	1,660	41,045
Northwestern				
Softwood	116	2,134	1,800	4,050
Hardwood	13,130	2,847	1,833	17,810
Total	13,246	4,981	3,633	21,860
All Regions				
Softwood	999	5,899	2,970	9,868
Hardwood	77,108	17,221	6,178	100,507
Total	78,107	23,120	9,148	110,375

[a]Does not include fuelwood or removals that were not manufactured into industrial products.

[b]Includes cooperage, mine timbers, and other miscellaneous products.

Table 4.--Number of operating sawmills and annual production class, West Virginia, 1965, 1974, 1979, 1987

Year	More than 1 million	Less than 1 million
1965	94	172
1974	90	137
1979	77	124
1987	*111	53

*30 of these mills are over 5 million board feet.

Table 5.--Production of sawlogs by species and destination of shipments, West Virginia, 1987

(Million board feet)[a]

Species	Total retained in state	Exported to:			Total export	Total production
		Ohio	Virginia	Other		
Hemlock	1.7	-	.1	*	.1	1.8
White pine	1.6	-	1.0	-	1.0	2.6
Yellow pine	.4	-	.1	-	.1	.5
Spruce	.3	-	-	-	.0	.3
Other softwoods	.2	-	1.3	-	1.3	1.5
Total softwoods	4.2	-	2.5	*	2.5	6.7
Ash	13.0	.9	.4	*	1.3	14.3
Basswood	18.0	.3	.4	*	.7	18.7
Beech	9.9	.4	.2	-	.6	10.5
Sweet birch	2.3	.1	*	-	.1	2.4
Yellow birch	1.2	*	-	-	.0	1.2
Black cherry	25.7	.5	.7	.1	1.3	27.0
Cucumber tree	2.9	.1	*	-	.1	3.0
Elm	.9	.2	-	-	.2	1.1
Black gum	3.5	*	-	-	.0	3.5
Hickory	16.9	.6	1.7	*	2.3	19.2
Red maple	21.3	.3	2.5	-	2.8	24.1
Sugar maple	29.1	.4	.8	*	1.2	30.3
White oak	47.2	4.4	5.0	.1	9.5	56.7
Chestnut oak	35.3	1.9	1.7	*	3.6	38.9
Northern red oak	116.7	3.6	8.6	.2	12.4	129.1
Other red oaks	43.4	8.0	1.4	-	9.4	52.8
Black walnut	2.3	.2	.2	.2	.6	2.9
Yellow-poplar	107.7	2.7	2.4	.1	5.2	112.9
Other hardwoods	6.9	.5	.1	-	.6	7.5
Total hardwoods	504.2	25.1	26.1	.7	51.9	556
Total all species	508.4	25.1	28.6	.7	54.4	562.8

[a]International 1/4-inch rule.
*Less than 50,000 board feet.

Table 6.--Consumption of sawlogs and source of shipments, West Virginia, 1987

(Million board feet)[a]

Species	Total produced in state	Imported from:			Total imports	Total consumption
		Kentucky	Maryland	Other states		
Hemlock	1.7	.1	*	*	.1	1.8
White pine	1.6	.1	.1	.1	.3	1.9
Yellow pine	.4	*	-	-	*	.4
Spruce	.3	*	-	-	*	.3
Other softwoods	.2	*	-	-	*	.2
Total softwoods	4.2	.2	.1	.1	.4	4.6
Ash	13.0	.2	.4	.2	.8	13.8
Basswood	18.0	*	.8	.4	1.2	19.2
Beech	9.9	.5	*	.2	.7	10.6
Sweet birch	2.3	.1	*	.1	.2	2.5
Yellow birch	1.2	.1	*	-	.1	1.3
Black cherry	25.7	.2	.2	.5	.9	26.6
Cucumber tree	2.9	.1	*	-	.1	3.0
Elm	.9	-	*	-	*	.9
Black gum	3.5	.1	*	-	.1	3.6
Hickory	16.9	.7	.1	.2	1.0	17.9
Red maple	21.3	.3	.9	.5	1.7	23.0
Sugar maple	29.1	.3	.7	.3	1.3	30.4
White oak	47.2	.7	1.2	1.2	3.1	50.3
Chestnut oak	35.3	.7	.7	1.0	2.4	37.7
Northern red oak	116.7	.9	2.3	1.8	5.0	121.7
Other red oaks	43.4	1.2	.8	1.3	3.3	46.7
Black walnut	2.3	.1	*	-	.1	2.4
Yellow-poplar	107.7	1.2	.9	1.5	3.6	111.3
Other hardwoods	6.9	.2	*	.3	.5	7.4
Total hardwoods	504.2	7.6	9.0	9.5	26.1	530.3
Total all species	508.4	7.8	9.1	9.6	26.5	534.9

[a]International 1/4-inch rule.
*Less than 50,000 board feet.

Table 7.--Production of sawlogs by species and geographic unit, West Virginia, 1987

(Million board feet)[a]

Species	Northeastern unit	Southern unit	Northwestern unit	Total state production
Hemlock	.8	.8	.2	1.8
White pine	1.5	.9	.2	2.6
Yellow pine	.1	.1	.3	.5
Spruce	.2	.1	*	.3
Other softwoods	.9	.5	.1	1.5
Total softwoods	3.5	2.4	.8	6.7
Ash	6.1	5.8	2.4	14.3
Basswood	8.7	8.6	1.4	18.7
Beech	4.0	3.6	2.9	10.5
Sweet birch	1.5	.7	.2	2.4
Yellow birch	.9	.2	.1	1.2
Black cherry	18.4	6.6	2.0	27.0
Cucumber tree	1.4	.9	.7	3.0
Elm	.6	.1	.4	1.1
Black gum	.9	2.1	.5	3.5
Hickory	4.4	11.2	3.6	19.2
Red maple	12.8	8.9	2.4	24.1
Sugar maple	16.4	11.1	2.8	30.3
White oak	24.0	19.6	13.1	56.7
Chestnut oak	15.6	12.9	10.4	38.9
Northern red oak	54.5	57.8	16.8	129.1
Other red oaks	20.2	14.5	18.1	52.8
Black walnut	1.3	.8	.8	2.9
Yellow-poplar	41.6	58.0	13.3	112.9
Other hardwoods	2.4	3.1	2.0	7.5
Total hardwoods	235.7	226.5	93.9	556.1
Total all species	239.2	228.9	94.7	562.8

[a]International 1/4-inch log rule.
*Less than 50,000 board feet.

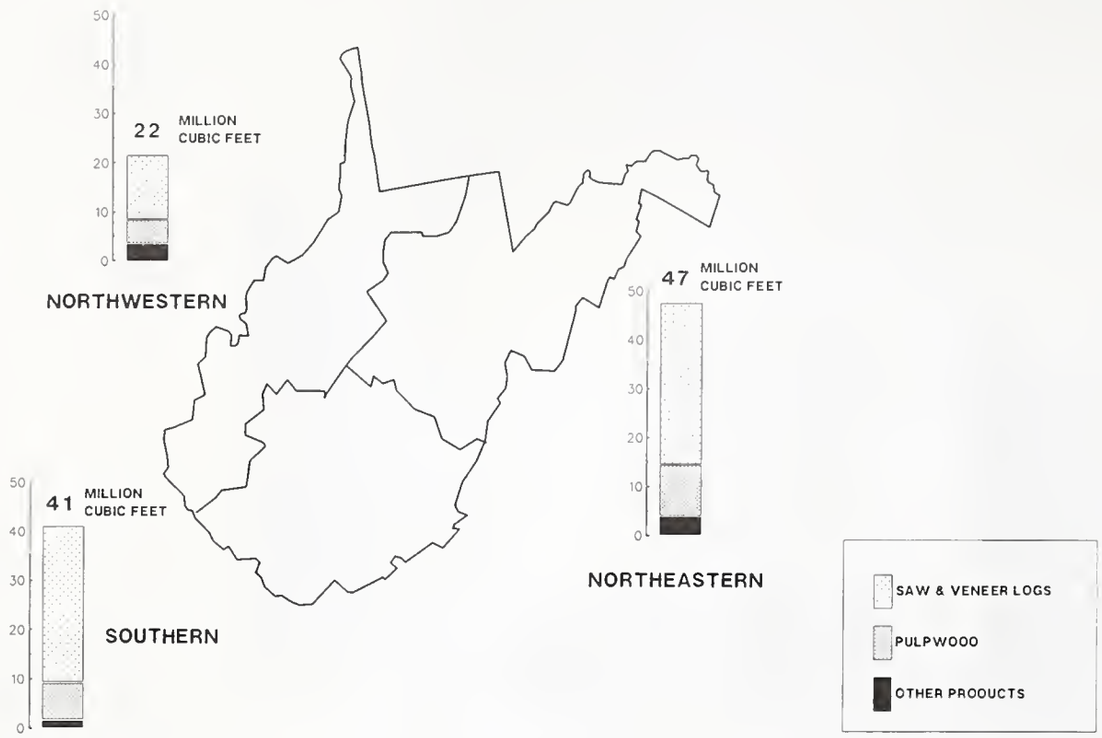

Figure 3.--Harvest of industrial wood in West Virginia, by unit and major products, 1987.

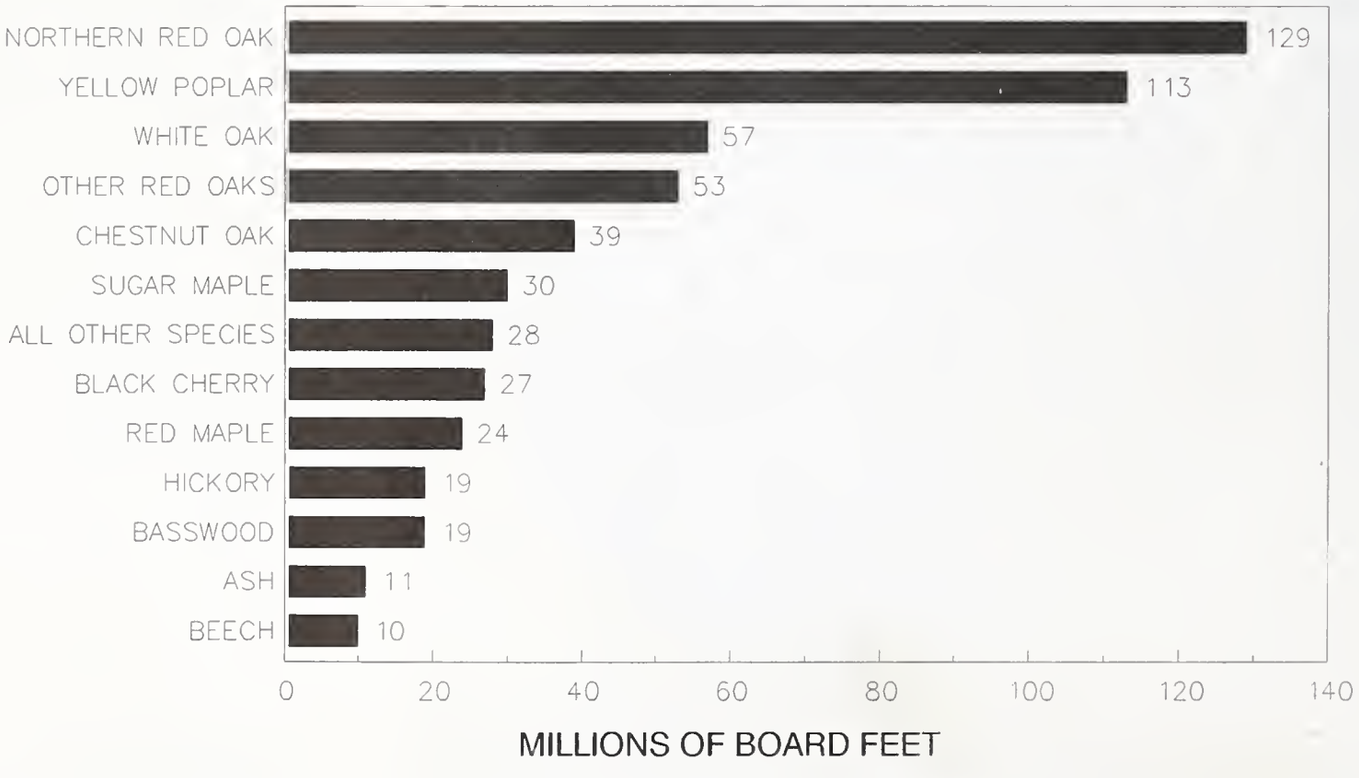

Figure 4.--West Virginia sawlog harvests, by species, 1987.

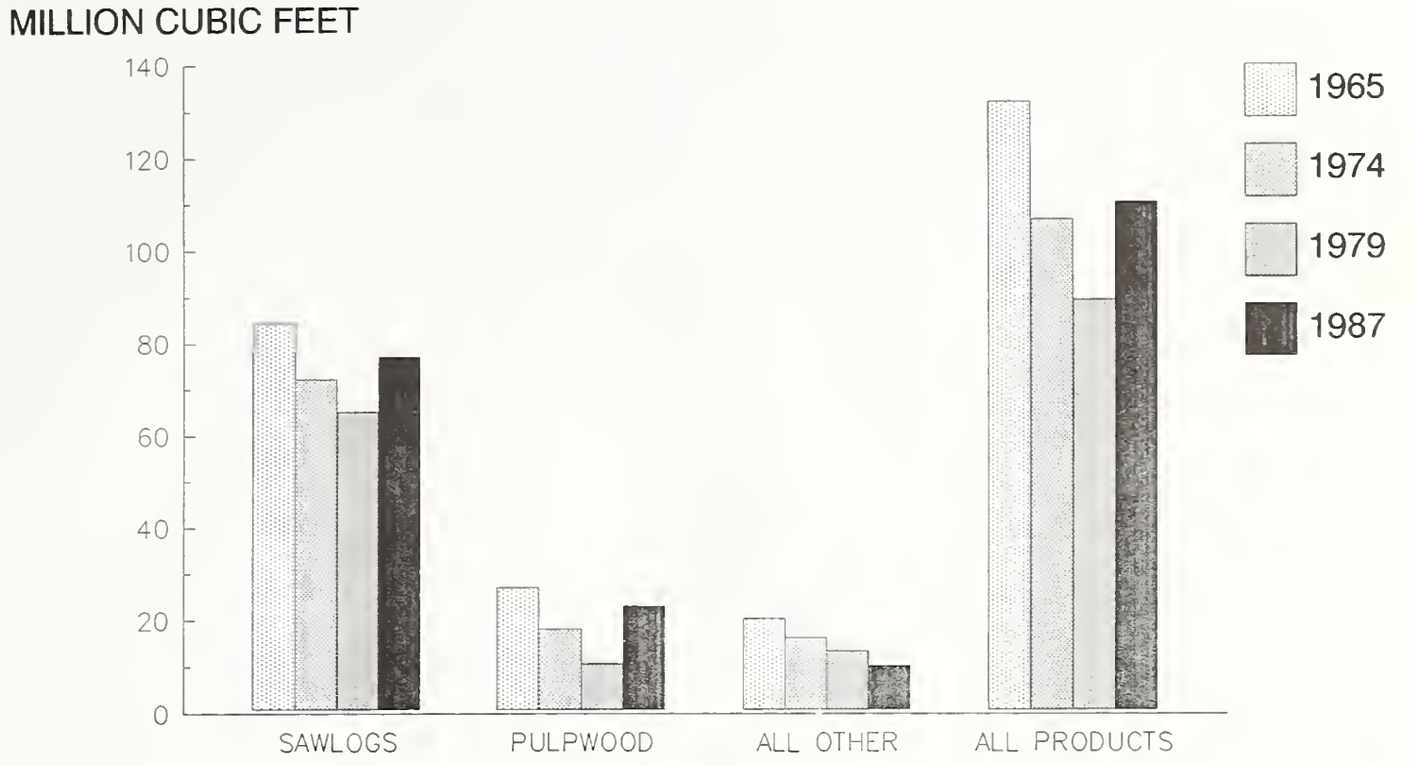

Figure 1.--Trends in West Virginia timber harvest for selected years, by product.

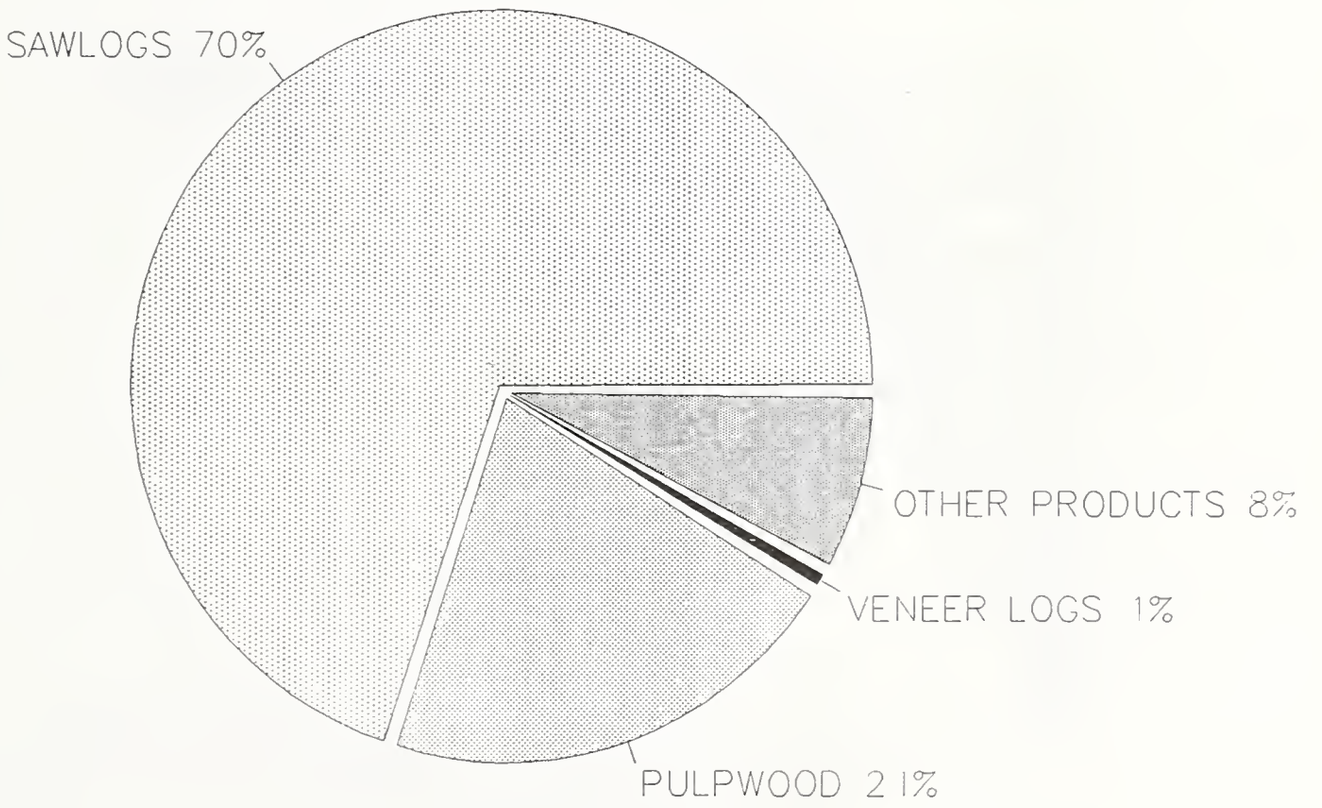

Figure 2.--West Virginia timber harvest, 1987. (Other products include cooperage, mine timbers and misc. products.)

Table 10.--Veneer log production, by species and consuming state, West Virginia, 1987

(Thousands of board feet)[a]

Species	Cut and retained in state	North Carolina	Ohio	Virginia	Other states	Canada	All other foreign	Total
Ash	14	2	48	7	-	4	23	98
Black cherry	7	48	-	49	-	22	113	239
Hickory	-	-	-	5	-	-	-	5
Red maple	7	-	-	-	-	-	-	7
Sugar maple	-	-	-	17	-	-	-	17
White oak	302	510	442	103	142	30	279	1,808
Chestnut oak	-	-	-	-	-	3	-	3
Northern red oak	292	842	271	164	46	135	230	1,980
Other red oaks	14	-	-	22	-	-	-	36
Black walnut	17	8	32	9	22	9	18	115
Yellow-poplar	119	2,484	-	693	-	-	-	3,296
Total	772	3,894	793	1,069	210	203	666	7,604

[a]International 1/4-inch log rule.

Table 11.--Veneer log production and receipts, West Virginia, for selected years: 1963-87

(Million board feet)[a]

Year	Production	Receipts
1963	7.0	6.3
1965	4.6	6.4
1968	7.9	8.7
1972	4.3	6.1
1974	3.2	4.3
1976	3.6	3.9
1979	8.5	23.0
1980	7.5	23.4
1984	3.9	*
1987	7.6	*

[a]International 1/4-inch log rule.
*Data withheld to avoid disclosure for individual mill.

Table 12.--Production and distribution of hardwood manufacturing residues by type of residue, source and use, West Virginia, 1987

(In thousands of cubic feet)

Disposition	Type of residue			All types
	Bark	Coarse[a]	Fine[b]	
		LUMBER[c]		
Fiber[d]	76	24,344	520	24,940
Industrial fuel	1,750	317	7,203	9,270
Domestic fuel	673	1,682	759	3,114
Agriculture[e]	3,613	256	1,964	5,833
Charcoal wood	1,109	208	3,559	4,876
Other[f]	231	354	173	758
Total, used	7,452	27,161	14,178	48,791
Unused	1,817	1,275	2,454	5,546
		OTHER INDUSTRIES[g]		
Industrial fuel	20	32	19	71
Domestic fuel	35	80	-	115
Agriculture	1	89	15	105
Charcoal wood	1	-	2	3
Other	73	109	191	373
Total, used	130	310	227	667
Unused	7	6	13	26
		ALL INDUSTRIES		
Fiber	76	24,344	520	24,940
Industrial fuel	1,770	349	7,222	9,341
Domestic fuel	708	1,762	759	3,229
Agriculture	3,614	345	1,979	5,938
Charcoal wood	1,110	208	3,561	4,879
Other	304	463	364	1,131
Total, used	7,582	27,471	14,405	49,458
Unused	1,824	1,281	2,467	5,572

[a]Includes slabs, edgings, trimmings, veneer cores, and other material suitable for chipping.

[b]Includes sawdust, shavings, and other material considered unsuitable for chipping.

[c]Includes lumber products sawn from sawlogs and boltwood.

[d]Includes woodpulp and composite products.

[e]Includes livestock bedding and farm and horticultural mulch.

[f]Includes miscellaneous uses such as small dimension and speciality items.

[g]Includes handles, guardrails, and mine timbers: excludes the woodpulp industry.

Widmann, Richard H.; Murriner, Edward C. 1990. **West Virginia timber products output--1987.** Resour. Bull. NE-115. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 20 p.

The total industrial harvest in West Virginia was over 110 million cubic feet in 1987. This was a 24 percent increase since 1979. Sawlogs accounted for 70 percent of the total and pulpwood accounted for 21 percent. During this 8-year period, sawlog production was up by 35 percent to 563 million board feet. Pulpwood production reached 272,000 cords of roundwood and 286,000 cord equivalents of residue chips. The use of manufacturing residues produced at West Virginia mills increased from 75 percent to 90 percent. The largest use of residues was for fiber.

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Morgantown, West Virginia, in cooperation with West Virginia University

Orono, Maine, In cooperation with the University of Maine

Parsons, West Virginia

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